Functional Ecology 1996
10, 785–788

Author Index

Abebrese I.K. *see* Veenendaal E.M.
Alford R.A. *see* Schwarzkopf L.
Allen M.F. *see* Klironomos J.N.
Anten N.P.R., Hernandez R. & Edina E. The photosynthetic capacity and leaf nitrogen concentration as related to light regime in shade leaves of a montane tropical forest tree, *Tetrorchidium rubrivenium*, 491
Arizmendi M.C., Domínguez C.A. & Dirzo R. The role of an avian nectar robber and of Hummingbird pollinators in the reproduction of two plant species, 119
Ashburner R. *see* Wainhouse D.
Ashenden T.W., Hunt R., Bell S.A., Williams T.G., Mann A., Booth R.E. & Poorter L. Responses to SO_2 pollution in 41 British herbaceous species, 483
Atkin O.K., Botman B. & Lambers H. The causes of inherently slow growth in alpine plants: an analysis based on the underlying carbon economies of alpine and lowland *Poa* species, 698

Baillieul M., Selens M. & Blust R. Scope for growth and fitness of *Daphnia magna* in salinity-stressed conditions, 227
Bakker J. *see* Kammenga J.E.
Bakker J.P. *see* Ter Heerdt G.N.J.
Bass M. & Cherrett J.M. Leaf-cutting ants (Formicidae, Attini) prune their fungus to increase and direct its productivity, 55
Begon M. *see* Sait S.M.
Bekker R.M. *see* Ter Heerdt G.N.J.
Bell S.A. *see* Ashenden T.W.
Bergeron J.-M. *see* Berteaux D.
Berna H. *see* Jenssen T.A.
Berrang P.C. *see* Groninger J.W.
Berteaux D., Thomas D.W., Bergeron J.-M. & Lapierre H. Repeatability of daily field metabolic rate in female Meadow Voles (*Microtus pennsylvanicus*), 751
Bertness M.D. *see* Harley C.D.G.
Bissoondath C.J. & Wiklund C. Effect of male mating history and body size on ejaculate size and quality in two polyandrous butterflies, *Pieris napi* and *Pieris rapae* (Lepidoptera: Pieridae), 457
Block W. *see* Hodkinson I.D.
Blom C.W.P.M. *see* Clevering O.A.
Blust R. *see* Baillieul M.
Booth R.E. *see* Ashenden T.W.
Botman B. *see* Atkin O.K.
Briskie J.V. Spatiotemporal patterns of sperm storage and last-male sperm precedence in birds, 375
Brix H. & Sorrell B.K. Oxygen stress in wetland plants: comparison of de-oxygenated and reducing root environments, 521
Buchmann S.L. *see* King M.J.
Busschers M. *see* Kammenga J.E.

Chanway C.P *see* Markham J.H.
Chappell M.A., Zuk M. & Johnsen T.S. Repeatability of aerobic performance in Red Junglefowl: effects of ontogeny and nematode infection, 578
Cherrett J.M. *see* Bass M.
Choong M.F. What makes a leaf tough and how this affects the pattern of *Castanopsis fissa* leaf consumption by caterpillars, 668
Clark S.C. *see* Pugaire F.I.
Clayton D.H. *see* Tompkins D.M.
Clevering O.A., Blom C.W.P.M. & Van Vierssen W. Growth and morphology of *Scirpus lacustris* and *S. maritimus* seedlings as affected by water level and light availability, 289
Coleman J.S. *see* Gedroc J.J.
Congdon J.D. *see* Jenssen T.A.
Conover D.O. *see* Schultz E.T.
Cooch E.G. *see* Williams T.D.
Coulson S.J. *see* Hodkinson I.D.

Davies R.W., Dratnal E. & Linton L.R. Activity and foraging behaviour in the predatory freshwater leech *Nephelopsis obscura* (Erpobdellidae), 51
De Jong T.J. *see* Van Dam N.M.
De Kroon H. *see* Stueffer J.F.
Delucia E.H. *see* Heckathorn S.A.
Diemer D. & Körner C.H. Lifetime leaf carbon balances of herbaceous perennial plants from low and high altitudes in the central Alps, 33
Dirzo R. *see* Arizmendi M.C.
Domínguez C.A. *see* Arizmendi M.C.
Dratnal E. *see* Davies R.W.
Duarte C.M. *see* Nielsen S.L.
Dunham A.E. *see* Petraitis P.S.
During H.J. *see* Stueffer J.F.

Edina E. *see* Anten N.P.R.
Edmands S. *see* Jenssen T.A.
Enríquez S. *see* Nielsen S.L.
Escudero J.C. *see* Núñez-Olivera E.
Estes R. *see* Jenssen T.A.
Evans P.R. *see* Scott I.
Ezcurra E. *see* Higgins L.E.

Fang C. & Moncrieff J.B. An improved dynamic chamber technique for measuring CO_2 efflux from the surface of soil, 297
Farnsworth K.D. & Illius A.W. Large grazers back in the fold: generalizing the prey model to incorporate mammalian herbivores, 678
Farquhar G.D. *see* Lloyd J.
Fischer R.U. *see* Jenssen T.A.
Fleming I.A. *see* Jonsson N.

García-Fayos P. *see* Verdú M.
Gaston A.J. *see* Houston A.I.
Gauslaa Y. & Solhaug K.A. Differences in the susceptibility to light stress between epiphytic lichens of ancient and young boreal forest stands, 344
Gedroc J.J., McConnaughay K.D.M. & Coleman J.S. Plasticity in root/shoot partitioning: optimal, ontogenetic, or both?, 44
Geedey C.K., Tessier A.J. & Machledt K. Habitat heterogeneity, environmental change, and the clonal structure of *Daphnia* populations, 613
Genty B. *see* Pontailler J.-Y.
Goldberg D. *see* Taub D.R.
Gómez A. & Serra M. Mate choice in male *Brachionus plicatilis* rotifers, 681
Gomi T. & Takeda M. Changes in life-history traits in the Fall Webworm within half a century of introduction to Japan, 384
Gordon I.J., Illius A.W. & Milne J.D. Sources of variation in the foraging efficiency of grazing ruminants, 219
Götmark F. Simulating a colour mutation: conspicuous red wings in the European Blackbird reduce the risk of attacks by Sparrowhawks, 355
Grenfell B.T. *see* Wilson K.
Grime J.P. *see* Spring G.M.
Groninger J.W., Seiler J.R., Zedaker S.M. & Berrang P.C. Effects of CO_2 concentration and water availability on growth and gas exchange in greenhouse-grown miniature stands of Loblolly Pine and Red Maple, 708
Gross J.E. *see* Shipley L.A.
Grubb P.J. & Metcalfe D.J. Adaptation and inertia in the Australian tropical lowland rain-forest flora: contradictory trends in intergeneric and intrageneric comparisons of seed size in relation to light demand, 512
Gurney W.S.C. & Middleton D.A.J. Optimal resource allocation in a randomly varying environment, 602

Haase P. *see* Pugaire F.I.
Harley C.D.G. & Bertness M.D. Structural interdependence: an ecological consequence of morphological responses to crowding in marsh plants, 654
Harrison J.F., Nielsen D.I. & Page R.E. Jr. Malate dehydrogenase phenotype, temperature and colony effects on flight metabolic rate in the Honey-bee, *Apis mellifera*, 81
Harvey J.A. *see* Sait S.M.
Haxeltine A. & Prentice I.C. A general model for the light-use efficiency of primary production, 551
Heckathorn S.A. & Delucia E.H. Retranslocation of shoot nitrogen to rhizomes and roots in prairie grasses may limit loss of N to grazing and fire during drought, 396
Heino M. & Kaitala V. Optimal resource allocation between growth and reproduction in clams: why does indeterminate growth exist?, 245
Hernandez R. *see* Anten N.P.R.
Higgins L.E. & Ezcurra E. A mathematical simulation of thermoregulatory behaviour in an orb-weaving spider, 322
Hikosaka K. & Terashima I. Nitrogen partitioning among photosynthetic components and its consequence in sun and shade plants, 335
Hilbert D.W. & Messier C Physical stimulation of trees to study the effects of forest light environment, branch type and branch spacing on light interception and transmission, 777
Hodkinson I.D., Coulson S.J., Webb N.R. & Block W. Can high Arctic soil microarthropods survive elevated summer temperatures?, 314
Hopkin S.P. *see* Jones D.T.
Houston A.I., Thompson W.A. & Gaston A.J. The use of a time and energy budget model of a parent bird to investigate limits to fledging mass in the Thick-billed Murre, 432
Huber H. Plasticity of internodes and petioles in prostrate and erect *Potentilla* species, 401
Hunt R. *see* Ashenden T.W.
Huntingford F.A. *see* Simpson A.L.

Illius A.W. *see* Gordon I.J.
see also Farnsworth K.D.
Incoll L.D. *see* Pugaire F.I.
Ineichen K. *see* Wiemken V.
Iwasa I. *see* Van Dam N.M.

Jacobs D.S. Morphological divergence in an insular bat, *Lasiurus cinereus semotus*, 622
Jeffree C.E. & Jeffree E.P. Redistribution of the potential geographical ranges of Mistletoe and Colorado Beetle in Europe in response to the temperature component of climate change, 562
Jeffree E.P. *see* Jeffree C.E.
Jenni L. & Jenni-Eiermann S. Metabolic responses to diurnal feeding patterns during the postbreeding, moulting and migratory periods in passerine birds, 73
Jenni L. *see* Jenni-Eiermann S.
Jenni-Eiermann S. & Jenni L. Metabolic differences between the postbreeding, moulting and migratory periods in feeding and fasting passerine birds, 62
Jenni-Eiermann S. *see* Jenni L.
Jenssen T.A., Congdon J.D., Fischer R.U., Estes R., Kling D., Edmands S. & Berna H. Behavioural, thermal, and metabolic characteristics of a wintering lizard (*Anolis carolinensis*) from South Carolina, 201
Jepson P.C. *see* Kammenga J.E.
Johnsen T.S. *see* Chappell M.A.
Jones D.T. & Hopkin S.P. Reproductive allocation in the terrestrial isopods *Porcellio scaber* and *Oniscus asellus* in a metal-polluted environment, 741
Jones T. *see* Tompkins D.M.
Jonsson B. *see* Jonsson N.
Jönsson K.I., Korpimäki E., Pen I. & Tolonen P. Daily energy expenditure and short-term reproductive costs in free-ranging Eurasian Kestrels (*Falco tinnunculus*), 475
Jonsson N., Jonsson B. & Fleming I.A. Does early growth cause a phenotypically plastic response in egg production of the Atlantic Salmon?, 89

Kaitala V. *see* Heino M.
Kammenga J.E., Busschers M., Van Straalen N.M., Jepson P.C. & Bakker J. Stress-induced fitness reduction is not determined by the most sensitive life-cycle trait, 106
Kersten M. & Visser W. The rate of food processing in the Oystercatcher: food intake and energy expenditure constrained by a digestive bottleneck, 440
Kikuzawa K., Koyama H., Umeki K. & Lechowicz M.J. Some evidence for an adaptive linkage between leaf phenology and shoot architecture in sapling trees, 252
King M.J. & Buchmann S.L. Sonication dispensing of pollen from *Solanum laciniatum* flowers, 449
Kling D. *see* Jenssen T.A.
Klinkhamer P.G.L. *see* Wesselingh R.A.
Klironomos J.N., Rillig M.C. & Allen M.F. Below-ground microbial and microfaunal responses to *Artemisia tridentata* grown under elevated atmospheric CO_2, 527
Konarzewski M., Kowalczyk T., Świerubska T. & Lewończuk B. Effect of short-term feed restriction, realimentation and overfeeding on growth of Song Thrush (*Turdus philomelos*) nestlings, 97
Körner C.H. *see* Diemer D.
Korpimäki E. *see* Jönsson K.I.
Koteja P. Measuring energy metabolism with open-flow respirometric systems: which design to choose?, 675
Kowalczyk T. *see* Konarzewski M.
Koyama H. *see* Kikuzawa K.
Kubo T. *see* Van Dam N.M.
Kyllo D. *see* Lovelock C.E.

Lambers H. *see* Atkin O.K.
Lampert W. & Trubetskova I. Juvenile growth rate as a measure of fitness in *Daphnia*, 631
Lapierre H. *see* Berteaux D.
Lecha R.T. *see* Veenendaal E.M.
Lechowicz M.J. *see* Kikuzawa K.
Lewończuk B. *see* Konarzewski M.
Linton L.R. *see* Davies R.W.
Lloyd J. & Farquhar G.D. The CO_2 dependence of photosynthesis, plant growth responses to elevated atmospheric CO_2 concentrations and their interaction with soil nutrient status. I. General principles and forest ecosystems, 4
Lotz C.N. & Nicolson S.W. Sugar preferences of a nectarivorous passerine bird, the Lesser Double-collared Sunbird (*Nectarinia chalybea*), 360
Lovelock C.E., Kyllo D. & Winter K. Growth responses to vesicular–arbuscular mycorrhizae and elevated CO_2 in *see*dlings of a tropical tree, *Beilschmiedia pendula*, 662

Machledt K. *see* Geedey C.K.
Mann A. *see* Ashenden T.W.
Markham J.H. & Chanway C.P. Measuring plant neighbour effects, 548
Martin J. Effects of recent feeding on locomotor performance of juvenile *Psammodromus algirus* lizards, 390
Martínez-Abaigar J. *see* Núñez-Olivera E.
McConnaughay K.D.M. *see* Gedroc J.J.
Merilä J. Genetic variation in offspring condition: an experiment, 465
Messier C *see* Hilbert D.W.
Metcalfe D.J. *see* Grubb P.J.
Metcalfe N.B. *see* Simpson A.L.
Middleton D.A.J. *see* Gurney W.S.C.
Milne J.D. *see* Gordon I.J.
Mitchell P.I. *see* Scott I.
Moncrieff J.B. *see* Fang C.
Morand S. Life-history traits in parasitic nematodes: a comparative approach for the search of invariants, 210

Nicholson K.S. *see* Wardle D.A.

Nicolson S.W. *see* Lotz C.N.
Nielsen D.I. *see* Harrison J.F.
Nielsen S.L., Enríquez S., Duarte C.M. & Sand-Jensen K. Scaling maximum growth rates across photosynthetic organisms, 167
Niewiarowski P.H. *see* Petraitis P.S.
Núñez-Olivera E., Martínez-Abaigar J. & Escudero J.C. Adaptability of leaves of *Cistus ladanifer* to widely varying environmental conditions, 636

Ögren E. Premature dehardening in *Vaccinium myrtillus* during a mild winter: a cause for winter dieback?, 724
Oleksyn J. *see* Reich P.B.
Owusu-Afriyie K. *see* Veenendaal E.M.

Page Jr R.E. *see* Harrison J.F.
Pen I. *see* Jönsson K.I.
Petraitis P.S., Dunham A.E. & Niewiarowski P.H. Inferring multiple causality: the limitations of path analysis, 421
Pontailler J.-Y. & Genty B. A simple red:far-red sensor using gallium arsenide phosphide detectors, 535
Poorter L. *see* Ashenden T.W.
Potvin C. *see* Stewart J.
Prentice I.C. *see* Haxeltine A.
Priestman G.H. *see* Spring G.M.
Pugaire F.I., Haase P., Incoll L.D. & Clark S.C. Response of the tussock grass *Stipa tenacissima* to watering in a semiarid environment, 265

Qualls C.P., & Shine R. Reconstructing ancestral reaction norms: an example using the evolution of reptilian viviparity, 688

Reich P.B., Oleksyn J. & Tjoelker M.G. Needle respiration and nitrogen concentration in Scots Pine populations from a broad latitudinal range: a common garden test with field-grown trees, 768
Reynolds K.E. *see* Schultz E.T.
Rillig M.C. *see* Klironomos J.N.
Ryser P. The importance of tissue density for growth and life span of leaves and roots: a comparison of five ecologically contrasting grasses, 717

Sait S.M., Begon M., Thompson D.J. & Harvey J.A. Parasitism of baculovirus-infected *Plodia interpunctella* by *Venturia canescens* and subsequent virus transmission, 586
Sand-Jensen K. *see* Nielsen S.L.
Schultz E.T., Reynolds K.E. & Conover D.O. Countergradient variation in growth among newly hatched *Fundulus heteroclitus*: geographic differences revealed by common-environment experiments, 366
Schwarzkopf L. & Alford R.A. Desiccation and shelter-site use in a tropical amphibian: comparing toads with physical models, 193
Scott I., Mitchell P.I. & Evans P.R. How does variation in body composition affect the basal metabolic rate of birds?, 307
Seiler J.R. *see* Groninger J.W.
Selens M. *see* Baillieul M.
Serra M. *see* Gómez A.
Shaw D.J. *see* Wilson K.
Shine R. *see* Qualls C.P.,
Shipley L.A., Spalinger D.E., Gross J.E., Thompson Hobbs N. & Wunder B.A. The dynamics and scaling of foraging velocity and encounter rate in mammalian herbivores, 234
Simpson A.L., Metcalfe N.B., Huntingford F.A. & Thorpe J.E. Pronounced seasonal differences in appetite of Atlantic Salmon parr, *Salmo salar*: effects of nutritional state and life-history strategy, 760
Solhaug K.A. *see* Gauslaa Y.
Sorrell B.K. *see* Brix H.
Spalinger D.E. *see* Shipley L.A.
Spring G.M., Priestman G.H. & Grime J.P. A new field technique for elevating carbon dioxide levels in climate change experiments, 541
Stewart J. & Potvin C. Effects of elevated CO_2 on an artificial grassland community: competition, invasion and neighbourhood growth, 157
Stock W.D. *see* van der Heyden F.
Stueffer J.F., De Kroon H. & During H.J. Exploitation of environmental heterogeneity by spatial division of labour in a clonal plant, 328
Swaine M.D. *see* Veenendaal E.M.
Swanborough P. & Westoby M. Seedling relative growth rate and its components in relation to seed size: phylogenetically independent contrasts, 176
Świerubska T. *see* Konarzewski M.

Takeda M. *see* Gomi T.
Tanaka K. Seasonal and latitudinal variation in supercooling ability of the House Spider, *Achaearanea tepidariorum* (Araneae: Theridiidae), 185
Taub D.R. & Goldberg D. Root system topology of plants from habitats differing in soil resource availability, 258
Ter Heerdt G.N.J., Verweij G.L., Bekker R.M. & Bakker J.P. An improved method for seed-bank analysis: seedling emergence after removing the soil by sieving, 144
Terashima I. *see* Hikosaka K.
Tessier A.J. *see* Geedey C.K.
Thomas D.W. *see* Berteaux D.
Thompson D.J. *see* Sait S.M.
Thompson Hobbs N. *see* Shipley L.A.
Thompson W.A. *see* Houston A.I.
Thorpe J.E. *see* Simpson A.L.
Tjoelker M.G. *see* Reich P.B.
Tolonen P. *see* Jönsson K.I.
Tompkins D.M., Jones T. & Clayton D.H. Effect of vertically transmitted ectoparasites on the reproductive success of swifts (*Apus apus*), 733
Trubetskova I. *see* Lampert W.

Umeki K. *see* Kikuzawa K.

Van Dam N.M., De Jong T.J., Iwasa I. & Kubo T. Optimal distribution of defences: are plants smart investors?, 128
Van der Hage J.C.H. Why are there no insects and so few higher plants, in the sea? New thoughts on an old problem, 546
van der Heyden F. & Stock W.D. Regrowth of a semiarid shrub following simulated browsing: the role of reserve carbon, 647
Van Straalen N.M. *see* Kammenga J.E.
Van Vierssen W. *see* Clevering O.A.
Veenendaal E.M., Swaine M.D., Lecha R.T., Walsh M.F., Abebrese I.K. & Owusu-Afriyie K. Responses of West African forest tree seedlings to irradiance and soil fertility, 501
Verdú M. & García-Fayos P. Nucleation processes in a Mediterranean bird-dispersed plant, 275
Verweij G.L. *see* Ter Heerdt G.N.J.
Visser W. *see* Kersten M.

Wainhouse D. & Ashburner R. The influence of genetic and environmental factors on a quantitative defensive trait in Spruce, 137
Walsh M.F. *see* Veenendaal E.M.
Wardle D.A. & Nicholson K.S. Synergistic effects of grassland plant species on soil microbial biomass and activity: implications for ecosystem-level effects of enriched plant diversity, 410
Webb N.R. *see* Hodkinson I.D.
Wesselingh R.A. & Klinkhamer P.G.L. Threshold size for vernalization in *Senecio jacobaea*: genetic variation and response to artificial selection, 281

Westoby M. *see* Swanborough P.
Wiemken V. & Ineichen K. A method to access the below-ground part of a model spruce ecosystem, 417
Wiklund C. *see* Bissoondath C.J.
Williams T.D. & Cooch E.G. Egg size, temperature and laying sequence: why do Snow Geese lay big eggs when it's cold?, 112
Williams T.G. *see* Ashenden T.W.
Wilson K., Grenfell B.T. & Shaw D.J. Analysis of aggregated parasite distributions: a comparison of methods, 592
Winter K. *see* Lovelock C.E.
Wunder B.A. *see* Shipley L.A.

Zedaker S.M. *see* Groninger J.W.
Zuk M. *see* Chappell M.A.

Functional Ecology 1996
10, 789–792

Subject Index

Abutilon theophrasti 44–50
Accipiter nisus 355–359
acclimation 335–343
Acer rubrum 708–716
Acer saccharum 777–783
Achaearanea tepidariorum 185–192
aerobic capacity 578–585
air pollution 483–490
allometry 44–50, 219–226, 475–482, 622–630
Alnus hirsuta 252–257
Alocasia macrorrhiza 335–343
Alpine plants 33–43, 698–707
amphibians 193–200
Andropogon gerardii 396–400
Anolis carolinensis 201–209
anoxia tolerance 521–526
Anser caerulescens caerulescens 112–118
ant, leaf-cutting 55–61
Apis mellifera 81–88
Apus apus 733–740
arbuscular mycorrhiza 527–534
Arctic soil microarthropods 314–321
Artemisia tridentata 527–534
Atta sexdens 55–61

baculovirus 586–591
basal metabolic rate (BMR) 307–313
bats 622–630
bees 81–88, 449–456
beetles 137–143, 562–577
behaviour, thermoregulatory 201–209, 322–327
behavioural compensation 390–395
Beilschmieia pendula 662–667
Betula platyphilla var *japonica* 252–257
biodiversity 410–416
biomass allocation 401–409
biomechanics 654–661
biophysical models 193–200
bird-dispersed plant 275–280
birds 62–72, 73–80, 307–313, 375–383, 432–439, 475–482
BMR *see* basal metabolic rate
body condition, of nestlings 465–474
body mass, and metabolic rate 307–313
body size, and feeding behaviour 51–54
boreal forest 344–354
Brachionus plicatilis 681–687
Bufo marinus 193–200
butterflies 457–464

cadmium 106–111
canopy 777–783
carbon balance, of leaves 33–43
carbon economy, of alpine plants 698–707
carbon reserve 647–653
Castanopsis fissa 668–674
Chenopodium album 44–50, 335–343
chick size 432–439
Cistus ladanifer 636–646
clams 245–251
climate change 314–321, 541–545, 551–561, 562–577, *see also* global change
cline of growth rates 366–374
clonal plants 328–334, 401–409
clonal structure, of *Daphnia* populations 613–621
CO_2 dependence, of photosynthesis 4–32
CO_2 elevation 527–534, 541–545, 662–667
  and grassland community 157–166
  and plant growth 4–32
  and tree stand development 708–716
CO_2 efflux from soil 297–305
cold hardiness, of *Vaccinium myrtillus* 724–732
Collembola 314–321
colonization, of abandoned fields 275–280
colour evolution 355–359
competition 157–166, 602–612
Crataerina pallida 733–740
Cynoglossum officinale 128–136

daily energy expenditure (DEE) 475–482, 751–759
Daphnia galeata 613–621
Daphnia magna 227–233, 631–635
Daphnia pulicaria 613–621
dark respiration 768–776
decomposition 410–416
DEE *see* daily energy expenditure
Dendroctonus micans 137–143
Dennyus hirundinis 733–740
desiccation rate measurements 193–200
developmental programme, of Song Thrush 97–105
developmental rate, of webworm 384–389
digestive bottleneck 440–448
Diglossa baritula 119–127
distribution
  of bird-dispersed plant 275–280
  of parasites 592–601
DLW *see* doubly labelled water
doubly labelled water (DLW) 475–482, 751–759
dynamic chamber technique 297–305

egg production, of Atlantic Salmon 89–96
egg size, of Snow Geese 112–118
ejaculate size 457–464
energetics 201–209, 475–482, 675–677, 751–759
energy budget, of *Daphnia* 227–233
energy constraints, in parenting 432–439
energy expenditure
  of birds 307–313
  of oystercatchers 440–448
Erithacus rubecula 62–72, 73–80
evolution
  of colouration 355–359
  of island fauna 622–630
  of life-history traits 210–218
  of viviparity 688–697

FACE *see* free-air carbon dioxide enrichment system
Falco tinnunculus 475–482
fat metabolism 62–72, 73–80
feeding, the effect on locomotion 390–395
feeding behaviour of freshwater leech 51–54
female control of paternity 375–383
Ficedula albicollis 465–474
Ficedula hypoleuca 73–80
field metabolic rate (FMR) 751–759
fish 89–96, 366–374, 760–767
fitness measurements, in *Daphnia* 631–635
fledging mass 432–439
flight metabolic rate, in honey-bee 81–88
flower induction 281–288
FMR *see* field metabolic rate
food availability 97–105
food intake
  in salmon 760–767
  in oystercatcher 440–448
foraging behaviour
  of grazing ruminants 219–226
  of leeches 51–54
foraging velocity 234–244
forest, and CO_2 elevation 4–32, 708–716
forest light environment 777–783
free-air carbon dioxide enrichment (FACE) system 541–545
Fuchsia microphylla 119–127
functional types 483–490
Fundulus heteroclitus 366–374

fungus garden of ants 55–61

Gallus gallus 578–585
geese, Snow 112–118
genetic variation
  in offspring condition 465–474
  in threshold size for flowering 281–288
generalized linear modelling (GLM) 592–601
genetics 281–288
geographic variation
  in life-history traits 366–374, 384–389
  in supercooling ability 185–192
geographical range of species, and climate change 562–577
Geum spp. 33–43
GLM *see* generalized linear modelling
global change 527–534, 708–716, *see also* climate change
Glyceria maxima 521–526
graminoid-shrub community 647–653
grass 265–274, 396–400, 717–723
grassland plant species 157–166, 410–416
grazing 219–226, 678–680
  and regrowth of a shrub 647–653
growth
  determinate and indeterminate 602–612
  indeterminate, of clams 245–251
  of plants and elevated CO_2 4–32
  regrowth after defoliation 647–653
growth analysis 501–511, 698–707
growth flexibility, of Song Thrush 97–105
growth form 401–409
growth rate
  and seed size 176–184
  as a measure of fitness in *Daphnia* 631–635
  of Atlantic Salmon 89–96
  of macrophytes 289–296
  of plants 167–175
growth responses, of a tropical tree species 662–667

habitat heterogeneity
  and clonal plants 328–334
  and clonal structure of *Daphnia* populations 613–621
Haematopus ostralegus 440–448
herbivory 219–226, 234–244, 678–680
  and distribution of plant defences 128–136
  and leaf toughness 668–674
heritability 137–143, 465–474
hexose sugars 360–365
host-pathogen–parasitoid interaction 586–591
hummingbirds 119–127
Hyphantria cunea 384–389

Iva frutescens 654–661

Juncus gerardi 654–661

Lasiurus cinereus semotus 622–630
leaf, construction cost of 33–43
leaf carbon balance 33–43
leaf characteristics, of *Cistus ladanifer* 636–646
leaf life span 33–43, 717–723
leaf nitrogen 335–343, 491–500
leaf phenology 252–257
leaf toughness 668–674
leaf-emergence pattern 252–257
leeches 51–54
Leptinotarsa decemlineata 562–577
Lerista bougainvillii 688–697
lichens 344–354
life-cycle experiment 106–111
life-history traits 245–251
  changes in 384–389
  evolution of 210–218
  geographic differentiation in 366–374
light conditions
  and growth form 401–409
  and growth of macrophytes 289–296
  and growth of understorey plant 491–500
  and photosynthesis 335–343
light demand, and seed size 512–520
light interception and transmission, by sugar maple 777–783
light responses, of tropical trees 501–511
light stress 344–354
light-use efficiency (LUE) 551–561
lignin 137–143
lizards 201–209, 390–395, 688–697
Lobarion spp. 344–354
locomotion
  of lizards 390–395
  of mammalian herbivores 234–244
LUE *see* light-use efficiency

macrophytes 289–296
malate dehydrogenase 81–88
mammalian herbivores 234–244, 678–680
maple, sugar 777–783
marsh plants 654–661
mating behaviour, of rotifers 681–687
mating systems, in butterflies 457–464
Mediterranean species 265–274, 275–280, 636–646
metabolic rate, in honey-bees 81–88
metabolic responses, of passerine birds 62–72, 73–80
metal pollution 741–750
microhabitat selection 322–327
Microtus pennsylvanicus 751–759
migration 62–72, 73–80
morphological divergence, in bats 622–630
morphological responses, to crowding in plants 654–661
moulting 62–72, 73–80
mycorrhizae 417–420, 527–534, 662–667

nectar 360–365
nectar robbery 119–127
Nectarinia chalybea 360–365
neighbourhood effects 157–166
nematodes 106–111, 210–218, 527–534, 578–585
Nephelopsis obscura 51–54
Nephila clavipes 322–327
nitrogen 396–400
nitrogen concentration
  in leaves 335–343, 491–500
  in needles 768–776
nucleation process 275–280
nuptial gifts 457–464
nutrient concentration, and growth rate 167–175
nutrient retranslocation 396–400
nutrient-poor conditions 717–723

offspring condition 465–474
Oniscus asellus 741–750
ontogenetic drift of root:shoot ratio 44–50
ontogeny 578–585
optimal defence theory 128–136
optimal partitioning model 44–50
Osteospermum sinuatum 647–653
oxygen consumption measurements 675–677
oxygen stress 521–526

PAR *see* photosynthetically active radiation
parasite distribution 592–601
parasites 210–218
  and the aerobic capacity of host 578–585
  vertically transmitted 733–740
parasitism of pathogen-infected host 586–591
Parmelion spp. 344–354
parthenogenesis 681–687
paternity, female control of 375–383
path analysis 421–431
pathogen transmission 586–591
PCC *see* phylogenetically controlled comparison
Phalaris arundinacea 521–526
phenology of leafing 252–257
photoinhibition 344–354

photoperiodic control of diapause 384–389
photosynthesis 265–274, 491–500, 521–526, 551–561, 698–707
  the CO_2 dependence of 4–32
photosynthetic apparatus 335–343
photosynthetic organisms, the growth rates of 167–175
photosynthetically active radiation (PAR) 535–540
phylogenetically controlled comparisons (PCC) 512–520
phylogenetically independent contrast (PIC) 176–184
phylogeny 688–697
physiological trade-offs 112–118
PIC *see* phylogenetically independent contrast
Pieris napi 457–464
Pieris rapae 457–464
Pinus sylvestris 768–776
Pinus taeda 708–716
Pistacia lentiscus 275–280
plant defence 128–136, 137–143, 668–674
plant growth
  and elevated CO_2 concentrations 4–32
  maximum rates of 167–175
plant–plant interactions 157–166
plant size, and vernalization 281–288
plant strategy 717–723
plasticity 44–50
  morphological 401–409
  of root system topology 258–264
  phenotypic 89–96, 578–585, 636–646
Plectus acuminatus 106–111
Plodia interpunctella 586–591
Poa alpina 698–707
Poa compressa 698–707
Poa costiniana 698–707
Poa fawcettiae 698–707
Poa pratensis 157–166, 698–707
Poa trivialis 698–707
pollen release 449–456
pollination efficiency 119–127
pollution 483–490, 741–750
Porcellio scaber 741–750
Potentilla crantzii 33–43
Potentilla spp. 401–409
prairie grasses 396–400
predation, and colour evolution 355–359
predation risk 390–395
prey model 678–680
primary production 551–561
Psammodromus algirus 390–395
pyrrolizidine alkaloids 128–136

Quercus crispula 252–257

Ranunculus spp. 33–43
reaction norms 688–697
red:far red sensor 535–540
regeneration 501–511
relative growth rate
  of Alpine plants 698–707
  of seedlings 176–184, 289–296
repeatability
  of aerobic performance 578–585
  of field metabolic rate 751–759
reproductive costs 475–482
reproductive success
  and metal pollution 741–750
  and nectar robbery 119–127
  the effect of parasites on 733–740
resource allocation 602–612
  in clams 245–251
respirometry 675–677
rhizosphere 417–420
root architecture 258–264
root life span 717–723
root:shoot ratio 44–50
roots 417–420, 521–526
ruminants 219–226

Salicornia europaea 654–661
salinity stress 227–233
Salmo salar 89–96, 760–767
salmon, Atlantic 89–96, 760–767
salt-marsh plants 654–661
Salvia mexicana 119–127
Schizachyrium scoparium 396–400
Scirpus lacustris 289–296
Scirpus maritimus 289–296
scope for growth (SfG) 227–233
SCP *see* summer supercooling point
seasonal variation
  in appetite of Atlantic salmon 760–767
  in leaf characteristics 636–646
  in supercooling ability 185–192
secondary chemicals 137–143
seed size 512–520
  and growth rate 176–184
seed-bank analysis 144–151
seedling emergence 144–151
seedling relative growth rate 176–184
Senecio jacobaea 281–288
SfG *see* scope for growth
shade leaves 491–500
shade tolerance, and seed size 512–520
shelter-site selection 193–200
shoot architecture 252–257
SO_2 pollution 483–490
soil microbial biomass 410–416, 527–534
soil nutrients 4–32, 501–511
soil resources, and root architecture 258–264
soil respiration 297–305
Solanum laciniatum 449–456
Spartina alterniflora 654–661
Spartina pectinata 396–400
species range, and climate change 562–577
specific leaf area 167–175, 698–707
sperm precedence mechanisms 375–383
spiders 185–192, 322–327
spruce 137–143, 417–420
stage-structured models 602–612
statistical analysis 421–431
Stipa tenacissima 265–274
stress
  chemical 106–111
  light 344–354
  oxygen 521–526
  salinity 227–233
  water 265–274, 396–400
structural support, provided by neighbours 654–661
sucrose 360–365
sugar preferences of sunbird 360–365
summer supercooling point (SCP) 185–192
sunbirds 360–365
supercooling capacity 185–192
survival, at high temperatures 314–321
Sylvia atricapilla 62–72, 73–80
Sylvia borin 62–72, 73–80

temperature elevation
  and Arctic soil microarthropods 314–321
  and species range 562–577
Tetrorchidium rubrivenium 491–500
thermoregulation 322–327
  in Honey-bees 81–88
  in lizards 201–209
  in Snow Geese 112–118
  in spiders 322–327
Tilia japonica 252–257
time constraints in parenting 432–439
tissue density, of grass 717–723
toads 193–200
TOBEC *see* total body electrical conductivity
topology of root systems 258–264
total body electrical conductivity (TOBEC) 307–313
toxicants 106–111

trade-offs 245–251
tree architecture 252–257, 777–783
trees 137–143, 252–257, 491–500, 501–511, 662–667, 708–716, 777–783
Trifolium repens 157–166, 328–334
Tringa totanus 307–313
tropical forest 662–667
tropical rain forest 501–511, 512–520
  montane 491–500
Turdus philomelos 97–105
Turdus merula 355–359

Uria lomvia 432–439
Usneion spp. 344–354

VA *see* vesicular–arbuscular mycorrhizae
Vaccinium myrtillus 724–732
Venturia canescens 586–591
vernalization 281–288
vesicular–arbuscular (VA) mycorrhizae 662–667
virulence of parasites 733–740
Viscum album 562–577
viviparity 688–697
voltinism 384–389

wasp 586–591
water availability, and tree stand development 708–716
water level, and growth of macrophytes 289–296
water stress 265–274, 396–400
wetland plants 521–526
winter injury 724–732
woodlice 741–750

Xanthocephalus xanthocephalus 375–383
xylose 360–365

zinc 741–750